

CLAIMS

What is Claimed is:

1. A mine door leaf of generally laminar construction comprising a central core of a solidified composition, outer  
5 panels on opposite faces of the core, the core having a force-transmitting relationship with the panels constituting the panels and core as an integral stress-resistant structure, and one or more hinge components on the leaf.

2. A mine door leaf as set forth in claim 1 wherein the force-transmitting relationship is established by adhesion and/or mechanical coupling of the core to the panels.

3. A mine door leaf as set forth in claim 2 wherein the core comprises a fire-resistant foam material.

4. A mine door leaf as set forth in claim 3 wherein the core comprises a fire-resistant polyurethane foam material adherent to the panels thereby establishing the force-transmitting relationship.

5. A mine door leaf as set forth in claim 1 comprising a frame having a top, bottom and sides, the panels being secured on the frame in opposing spaced-apart relationship enclosing a space between the panels bounded by  
5 the top, bottom and sides of the frame, the core comprising a solidified filling in said space.

6. A mine door leaf as set forth in claim 5 wherein said door panels are secured to the top, bottom and sides of the frame on opposite faces of the frame.

7. A mine door leaf as set forth in claim 5 wherein the force-transmitting relationship is established by adhesion and/or mechanical coupling of the filling to the door panels.

8. A mine door leaf as set forth in claim 7 wherein the filling is a fire-resistant foam material.

9. A mine door leaf as set forth in claim 8 wherein the frame has one or more filling openings through which said filling was introduced in a fluent state.

10. A mine door leaf as set forth in claim 5 having bracing extending across the frame in said space.

11. A mine door leaf as set forth in claim 10 wherein the bracing triangulates the frame.

12. A mine door leaf as set forth in claim 10 wherein the filling is a fire-resistant polyurethane foam material adherent to the panels thereby establishing the force-transmitting relationship.

13. A mine door leaf as set forth in claim 12 wherein the frame has one or more filling openings through which the

foam material was introduced in a fluent state and the bracing has one or more passages for the material.

14. A mine door leaf as set forth in claim 5 wherein the filling is a fire-resistant material having strength in tension and compression, and wherein the frame or one or more of the door panels has one or more filling openings  
5 through which said filling was introduced in a fluent state.

15. A mine door leaf as set forth in claim 14 having bracing extending across the frame in said space, the bracing having one or more passages for the material.

16. A mine door leaf as set forth in claim 1 of unframed construction.

17. A method of manufacturing a mine door leaf comprising positioning two door leaf panels in opposing spaced-apart relation and filling the space between the panels with material in a fluent state, the filling material  
5 setting in situ to a solid state in force-transmitting relationship with said panels.

18. The method of claim 16 wherein the filling material sets up adhering and/or mechanically coupled to the panels to establish the force-transmitting relationship.

19. The method of claim 18 wherein the filling material is a fire-resistant foam material.

20. The method of claim 19 wherein the filling material is a fire-resistant closed-cell polyurethane foam material.

21. The method of claim 17 comprising fabricating a frame having a top, bottom and sides, positioning the door panels on the frame in opposing spaced apart relation providing said space between the panels bounded by the top,  
5 bottom and sides of the frame, and filling the space with said filling material in a fluent state through one or more filling openings in the frame or panels.

22. The method of claim 21 wherein the door panels are positioned on the frame and secured thereto prior to filling said space.

23. The method of claim 21 wherein the filling material sets up adhering and/or mechanically coupled to the panels to establish said force-transmitting relationship.

24. The method of claim 23 wherein the filling material is a fire-resistant closed-cell polyurethane foam material.

25. The method of claim 21 wherein the frame is fabricated with bracing extending thereacross in said space.

26. The method of claim 25 wherein the fluent material flows through and sets up in passages in the bracing.

27. The method of claim 17 wherein the panels are placed in opposing spaced-apart relation in a mold for the filling of said space.

28. The method of claim 27 wherein the filling material sets up adhering and/or mechanically coupled to the panels to establish the force-transmitting relationship.

29. The method of claim 28 wherein the filling material is a fire-resistant foam material.

30. The method of claim 29 wherein the filling material is a fire-resistant closed-cell polyurethane foam material.